

R E M A R K S

Applicant thanks the Examiner for the office action of September 16, 2002, and for the citation of the new references which have been studied with interest and care.

Claims 1 - 12 and 14 - 19 are pending in the application. All claims are rejected based on the newly cited art. Claims 1, 4, 7 - 8, 10, 14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Vries et al.

Claims 2 - 3, 5 - 6, 11 - 12, 15 - 16, and 18 - 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Vries et al. in view of Reber as applied to claims 1, 7 and 14.

Claims 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Vries et al. in view of Ichimura et al. as applied to claim 7.

By this amendment, applicant traverses the rejections. Applicant also submits the enclosed Declaration of Ronald M. Hickling under Rule 131 showing prior conception of the invention prior to the effective date of both the De Vries et al. reference and the Reber reference, coupled with due diligence to reduction to practice, thus removing De Vries et al. and Reber as citable references. Reconsideration of the application is respectfully requested.

I. Rejection of Claims 1, 4, 7 - 8, 10, 14 and 17 under 35 U.S.C. 103(a) over De Vries et al.

Claims 1, 4, 7 - 8, 10, 14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Vries et al. (U.S. Patent No. 5,736,848) (newly cited).

A. DE VRIES IS REMOVED AS PRIOR ART BY THE ENCLOSED RULE 131 DECLARATION

Initially, Applicant submits the enclosed Rule 131 Declaration establishing the inventor's conception of the invention prior to the effective date of the De Vries et al. reference, coupled with due diligence in reduction to practice. This declaration removes the De Vries et al. reference as a citable reference against the application. (See 37 C.F.R. 1.131). Applicant therefore respectfully requests the Examiner to withdraw all rejections based in whole or in part on De Vries et al.

B. THE INVENTION IS PATENTABLE EVEN IF DE VRIES WERE
CONSIDERED TO BE PRIOR ART

Additionally, the Examiner states that De Vries et al. "discloses a communication system in Fig. 2 for measuring the energy output from one or more electrical energy sources first makes an analog power measurement, and converts the resultant output into digital form." (Office Action at page 2). The Examiner appears to be generally quoting the first sentence of the abstract of De Vries et al.; however, the Examiner has inserted the characterization of De Vries et al. as a "communication system." This appears to be incorrect. De Vries et al. is not directed to a communication system. Rather, De Vries et al. is directed to a measurement and calibration system for measuring amounts of electrical energy, such as for use in single-phase and multiphase electricity meters. (Column 1, lines 12 through 17). Thus, the invention appears directed toward measuring AC line voltage, which is 60 Hz in the United States and typically 50 Hz in Europe, as well as AC line current. There is no hint or suggestion in De Vries et al. that the invention is either intended for, or applicable to, a communication system such as the RF communication system to which the invention of the present application is directed and which operates in the MHz or GHz frequency range.

Furthermore, in De Vries et al., the same clock is used to commutate both the input alternating voltage $u[t]$ which is input to the circuit (see Fig. 2; column 2, lines 36 through 38) and the sigma-delta modulator 8. The common clocking signal CL1 is disclosed as having a frequency of 2^5 Hz (column 2, line 58), although it appears that the sigma-delta modulator is actually clocked at 2^{17} Hz (see 4:6, and Fig. 9). Apparently, the input voltage and current signals are commutated to induce an alternating current $i_w[t]$ from voltage input $v[t]$ and current input $i[t]$ which produces magnetic induction $B_H[t]$ in field sensor 5. No other reason appears for commutating the line voltage input, other than to induce a magnetic induction effect so that the input voltage and current can be sensed and hence measured and converted to a digital measurement.

In contrast, the present invention is directed to a wireless communication system. Typically, such a communication system operates in the radio frequency and even GHz frequency range. In the invention, the purpose of commutating an incoming RF

waveform which represents the wireless transmission at the same frequency as the sigma-delta modulator is to translate the incoming waveform downward in frequency. For example, Fig. 5b in the application represents the corresponding output of the switch 78 (excluding noise) of Fig. 4 when the spectrum shown in Fig. 5a is applied thereto (Page 13, lines 17 through 18). One can see in the figure that the signal has been converted downward in frequency to at or near baseband. De Vries et al. suggests no motivation, nor would any motivation be apparent, to shift the incoming voltage in a line power voltage waveform (which is presumably at 50 or 60 Hz AC line frequency) downward to some other frequency. It would make no sense to do so.

In sum, 1) De Vries et al. does not relate to a "communication system" as asserted by the Examiner and as claimed in claim 1; 2) De Vries et al. does not relate to "a method of receiving a wireless transmission" as recited in the claim; 3) De Vries et al. apparently does not result in "translating said incoming waveform downward in frequency" as recited in the claim. Thus, although there are some superficial similarities between the electric meter circuit of De Vries et al. and the wireless receiver system of the present invention, the differences between the two are quite significant and it would in no way be obvious to use the De Vries et al. meter reading circuit for a wireless transmission receiving method as claimed in claim 1.

However, in order to clarify certain distinctions of the present invention over De Vries et al. claim 1 has been amended to recite that the method includes "inverting the polarity of an incoming waveform representing said wireless transmission on every one half clock cycle." Because De Vries et al. does not relate to a wireless transmission system, and no suggestion or motivation appears for using an electric meter circuit as an RF receiving circuit, the claim as amended clearly distinguishes over De Vries et al.

Independent claims 7 and 14 as amended recite similar limitations as those in claim 1 and patentably distinguish over De Vries et al. for similar reasons. Additionally, the Rule 131 Declaration removes the De Vries et al. reference as an effective reference against claims 7 and 14, and all other claims in the application.

Accordingly, applicant respectfully requests that all rejections based on De Vries et al. be withdrawn.

II. Rejection of Claims 2 - 3, 5 - 6, 11 - 12, 15 - 16 and 18 - 19 over De Vries et al. in view of Reber

Claims 2 - 3, 5 - 6, 11 - 12, 15 - 16, and 18 - 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Vries et al. in view of Reber (newly cited) as applied to claims 1, 7 and 14.

Initially, because the rejections of these claims are based on De Vries et al. as the primary reference, applicant respectfully requests that these rejections be likewise withdrawn for the reasons stated above.

Still further, the attached Declaration under Rule 131 removes the Reber reference as a citable reference as well. See 37 C.F.R. § 131. Applicant therefore requests that all of the rejections based in whole or in part on Reber be withdrawn as well.

Furthermore, the Reber circuit is much different and operates in a much different way than the circuit of the present invention. For example, claims 1, 7 and 14 recite that the incoming waveform is commutated at the same predetermined frequency as the sigma-delta modulator is clocked. Reber does not disclose or suggest such a method. In Reber, an exemplary commutation frequency is given as 135 KHz and the sample frequency is listed as 13 MHz (Column 4, line 21). The clock rates in Reber are nearly two orders of magnitude apart, rather than the same or approximately the same as claimed. Thus, Reber teaches away from the invention as claimed. The Reber circuit is, in fact, fundamentally incompatible with the invention as claimed.

Additionally, claims 2 and 15 recite that "said incoming waveform is centered about a radio frequency and ... said conversion clock has a frequency approximately equal to said radio frequency." Neither such a feature nor the advantages of such a feature are disclosed anywhere in Reber. Nor does the Examiner even assert that such a feature is disclosed or suggested by Reber, or any of the other references cited. In this regard, Applicant notes that in the Reber circuit the incoming signal has already been downconverted from a radio frequency by the RF mixer 7, leaving the signal at a significantly lower intermediate frequency (see Fig. 1) before the commutation. Thus, the conversion clock in Reber does not operate at a radio frequency as claimed in claims 2 and 15.

Applicant further notes that the Reber circuit employs an Automatic Gain Control (AGC) block 10, whereas the present invention helps to eliminate the need for an AGC (see Abstract), thus greatly simplifying the receiving circuit over what is shown in Reber.

CONCLUDING REMARKS

The electric meter reading circuit of De Vries et al. is unlike the wireless communication receiver of the present invention, is inapplicable to such a wireless receiver system, and does not in any way suggest the wireless receiver of the present invention. Additionally, the Reber circuit cited operates in a much different manner than the claimed method. Furthermore, both De Vries et al. and Reber circuited are removed as a citable references by the Rule 131 Declaration enclosed herewith.

Accordingly, applicant respectfully requests that all of the claim rejections be withdrawn, and the application be allowed to proceed to issuance.

If for any reason the Examiner feels that the claims are other than in condition for immediate allowance, the Examiner is respectfully requested to call applicant's undersigned representative at (310) 788-5021 to discuss any steps necessary to place the application in condition for allowance.

The Commissioner is hereby authorized to charge any additional filing fees under 37 C.F.R. § 1.16, or application processing fees under 37 C.F.R. § 1.17, which may be required now or during the pendency of this application, or credit any overpayment to Account No. 16-2230. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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